

BIOL 1406 (4:3:3)

Biology for Science Majors I

Department of Biology

Division of Arts and Sciences

SOUTH PLAINS COLLEGE
Levelland Campus

Spring 2019

Megan Keith
Instructor of Biology

COURSE INFORMATION SHEET
BIOL 1406- BIOLOGY FOR SCIENCE MAJORS I
SPRING 2019

Instructor: Megan Keith
Office: Science Building S132
Email: mkeith@southplainscollege.edu

Lecture: TR 8:00AM – 9:15AM (S181)
Lab: T 9:30AM – 12:00PM (S197)

Office Hours: Mon. 3:30-4:30
Tues. 1:30-3:30
Wed. 8:15-9:15/3:30-4:30
Thurs. by appointment
Fri. 8:30-11:30

Course Description: This course focuses on fundamental principles of living organisms including the chemistry of life, cell and molecular biology, genetics and evolution. This is the first semester of an integrated course for majors in biological sciences and related studies, including the medical disciplines.

Course Implementation:

Prerequisite: None

Credit: Four semester hours

Required Textbook: Campbell BIOLOGY, 11th edition by Reece et al. (**any format** is acceptable—printed, e-text, online access, etc.)

Lab Manual: *Biology for Science Majors I & II Lab Manual*, 2nd edition (Available only at the SPC bookstore)

Course Objectives:

- A. To introduce basic biological principles through an integrated approach.
- B. To investigate the cellular processes of living organisms with an emphasis on biological chemistry applications.
- C. To investigate the mechanisms of genetics and inheritance.
- D. To introduce the role and mechanisms of evolution in biology.

Online Course Content

- Blackboard is the primary source for all course information.
- **Students need to access Blackboard daily.** Firefox or Safari are recommended.
- Specific course materials available include: PowerPoint lectures, messages and announcements from the instructor, study aids, required handouts, etc.

SPC Email

Each student has an SPC email account and should check it regularly. Instructors and the administration will use this email address to contact the student.

Policies, Procedures, and Rules

This course will be conducted according to the policies and procedures of the South Plains College Student Handbook and General Catalog.

Attendance-

- Punctual and regular lecture and lab attendance is required of all students.
- Open door policy: if you do arrive late, quietly take your seat. You may not make up quizzes or other work. Excessive tardiness will not be tolerated and may result in withdrawal from the course (**3 late arrivals exceeding 10 minutes = 1 unexcused absence**).
- In the case of unexcused absence, the student will receive a 0 for the work submitted that day and it is the student's responsibility to obtain missed notes from classmates.
- When unavoidable situations such as illness, weather, an official college-sponsored trip, or a death in the family causes absence, the student may make up the missed class work as long as documentation can be provided. The student will have one week from the date the makeup work is assigned to turn it in for credit. (continued on next page)

- The student may be administratively withdrawn from the course when absences become excessive (**4 unexcused absences or more**) AND the minimum course objectives cannot be met. The instructor is required to initiate a student's administrative withdrawal when the student has missed every class period for two weeks excluding holidays.
- Should a student, for any reason, delay in reporting to a class after his/her official enrollment, absences will be attributed to the student from the first meeting of the class. A student who does not attend a class by the 12th day of classes will automatically be dropped from the course and receive a grade of "X".

Hazardous Weather Policy- South Plains College rarely cancels classes due to weather. Students should plan accordingly to be able to attend all classes and arrive at SPC Levelland safely. Announcements concerning cancellations and/or delays are made on local television, radio and MySPC.

Assessment

Final grades for the course will be calculated on a weighted scale: four exams (65%), assignments (online or hard copy-20%), and in-class quizzes (15%).

| Letter Grade | Course Average* |
|--------------|-----------------|
| A | 90-100% |
| B | 80-89% |
| C | 70-79% |
| D | 60-69% |
| F | 0-59% |

***Course Average:** Calculated by the average of the three grades indicated. If a student's final average *is less than* one half a percentage point away from the next higher letter grade, the instructor will consider giving the higher letter grade. There are NO curves or extra credit in this course.

Exams

- Each major exam will cover material from BOTH lecture and lab.
- The exam format will include multiple-choice questions, short answer questions, words to define, and diagrams to draw or label.
- Each exam score is recorded as a percent score (number correct out of the total possible) with 100% being the maximum score.
- The last ("final") exam will be given during final exam week and will include both new material and comprehensive material.
- Students should **NOT** miss exams! Any student who misses an exam will have a 0 score entered for that exam. I will only consider allowing a student to make up an exam if they have contacted me **before** the exam has been given AND they can show documentation for an event that qualifies as an excused absence.

Quizzes

- Quiz dates are listed on the course schedule. Quizzes will cover lecture and lab material from the previous class.
- Quizzes will be given at the **beginning** of the lecture period. Students will be given a set amount of time to finish the quiz. **Quizzes CANNOT be made up if missed for any reason.** Students who leave class immediately following a quiz will receive a 0 for that quiz.
- The lowest quiz grade (1) will be dropped at the end of the semester.

Academic Integrity

- It is the aim of the faculty of South Plains College to foster a spirit of complete honesty and a high standard of integrity. The attempt of any student to present any work as their own which he or she has not honestly performed is regarded as a most serious offense and renders the offender liable to serious consequences, possibly suspension.
- Any student caught cheating on an exam will be dropped immediately from the course with an "F". Any student caught cheating on a quiz will receive a permanent 0 for that grade that may not be dropped or replaced.

Electronic Devices

- ALL electronic devices should be silenced inside the classroom. Devices that may be out during lecture include laptops, tablets, and in *special circumstances*, cell phones.
- If an electronic device goes off repeatedly during lecture or lab, **5 points will be deducted from the student's next major exam grade per incident.**

- If a device is being utilized for anything other than what is being covered in class that day, the student will be dismissed from class and will receive a 0 for the day. If a student is a repeat offender and cannot control their electronics usage out of respect for others, the student will be dismissed from the course.
- **Phones and smartwatches must be put away during exams. Electronics must be left inside of the testing room if a student leaves for any reason (restroom break, etc.) before the exam is complete. Earbuds should not be worn at any time during class.**
- **You may NOT record the lectures (I will do that for you) or take photos/video of the instructor.**

Privacy

The federal law guaranteeing student privacy is the policy of this instructor as well as that of SPC. This means that I will not discuss your grade with anyone other than YOU.

Dismissal Policy

A high standard of conduct is expected of all students. It is assumed that obedience to the law, respect for properly constituted authority, personal honor, integrity, and common sense will guide the actions of each member of this class. Any student who fails to perform to expected standards will be asked to withdraw from the class. Descriptions of misconduct are listed in the South Plains College Student Guide.

Diversity Statement

In this class, the instructor will establish and support an environment that values and nurtures individual and group differences and encourages engagement and interaction. Understanding and respecting multiple experiences and perspectives will serve to challenge and stimulate all of us to learn about others, about the larger world, and about ourselves. By promoting diversity and intellectual exchange, we will not only mirror society as it is, but also model society as it should and can be.

Special Accommodations

Any student who needs special accommodations should identify themselves the first week of class. The student is responsible for providing the necessary documentation from the SPC Disabilities Services offices.

Students with disabilities, including but not limited to physical, psychiatric, or learning disabilities, who wish to request accommodations in this class should notify the Disability Services Office early in the semester so that the appropriate arrangements may be made. In accordance with federal law, a student requesting accommodations must provide acceptable documentation of his/her disability to the Disability Services Office. For more information, call or visit the Disability Services Office at Levelland Student Health & Wellness Center 806-716-2577, or the Health and Wellness main number at 806-716-2529.

Material Safety Data Sheets (MSDS)

These data sheets detail any potential hazards which may be incurred while utilizing various chemicals in the laboratory. The MSDS notebook is located in room 146 of the science building. Please ask the instructor if you need assistance.

Campus Concealed Carry

South Plains College permits the lawful carry of concealed handguns in accordance with Texas state law, and Texas Senate Bill 11. Individuals possessing a valid License to Carry permit, or the formerly issued Concealed Handgun License, may carry a concealed handgun at all campus locations except for the Natatorium. For a complete list of campus carry exclusions zones by event, please visit: <http://www.southplainscollege.edu/campuscarry.php>

Pursuant to PC 46.035, the open carrying of handguns is prohibited on all South Plains College campuses. Report violations to the College Police Department at 806-716-2396 or 9-1-1.

ALiCE Active Shooter Response Training Sessions are made available to students throughout each semester.

| <i>Tentative Lecture and Exam Schedule</i> | | | | <i>Laboratory Schedule</i> |
|--|---|---|---|---|
| Date | Topic | Campbell Biology 11th ed. | Assignments | Exercise |
| Jan. 15 | Introduction/Chemical Context of Life | Ch. 2 | | Lab Intro/CHP/Safety Study Techniques |
| Jan. 17 | The Chemical Context of Life/Water | Ch. 2 & 3 | Concept Check #1 (due 1/21) | |
| Jan. 22 | Carbon and the Molecular Diversity of Life | Ch. 4 | Practice essay available on Blackboard- Test prep (not graded), Independent Investigation Worksheet | Scientific Method (Ex. 1), Independent Investigations |
| Jan. 24 | The Structure and Function of Macromolecules | Ch. 5 | Quiz 1 Concept Check #2 (due 1/28) | |
| Jan. 29 | Enzymes | p. 153-161 | Quiz 2 | Microscopes (Ex. 5) Testing for Organic Molecules (Ex. 4) |
| Jan. 31 | EXAM 1 | | | |
| Feb. 5 | A Tour of the Cell & Membrane Structure and Function | Ch. 6 & 7 | Ch. 6- Independent Study | Cell Lab |
| Feb. 7 | Membrane Structure and Function & Intro to Metabolism | Ch. 7 & 8 | Concept Check #3 (due 2/11) | |
| Feb. 12 | Cellular Respiration | Ch. 9 | Osmosis Worksheet (due 2/14) | Diffusion and Osmosis (Ex. 7) |
| Feb. 14 | Cellular Respiration (cont.) | Ch. 9 | Concept Check #4 (due 2/18) | |
| Feb. 19 | Photosynthesis | Ch. 10 | Quiz 3 | Enzyme Lab (Ex. 8) |
| Feb. 21 | Photosynthesis (cont.) | Ch. 10 | Quiz 4 Concept Check #5 (due 2/25) | |
| Feb. 26 | Cell Communication | Ch. 11 | Quiz 5 | Photosynthesis and Respiration (Ex. 9 & 10) Start Fermentation |
| Feb. 28 | EXAM 2 | | | |
| Mar. 5 | The Cell Cycle | Ch. 12 | Concept Check #6 (due 3/11) | Mitosis (Ex. 11) |
| Mar. 7 | Meiosis and Sexual Life Cycles- NO CLASS | Ch. 13 | Quiz 6 (Blackboard) Independent Study (Blackboard Assignment) | |
| Mar. 11-15 | SPRING BREAK | | | |

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|--------------------|--|------------------|--|---|
| Mar. 19 | Meiosis Review/Mendel and the Gene Idea | Ch. 14 | Genetics Problems- Set #1 (due 3/26) | DNA Extraction, Fruit Fly Genetics Day 1 (Ex. 15), Genetics Problems (Ex. 14) |
| Mar. 21 | Chromosomal Basis of Inheritance | Ch. 15 | Quiz 7 Concept Check #7 (due 3/25) | |
| Mar. 26 | Chromosomal Basis of Inheritance (cont.), Molecular Basis of Inheritance | Ch. 15 Ch. 16 | Karyotypes (pg. 71- due in lab) Genetics Problems- Set #2 (due 4/2) | Genetics Problems (Ex. 14), Fruit Fly Genetics Day 2 (Ex. 15), Karyotypes |
| Mar. 28 | Mol. Basis of Inheritance (cont.) | Ch. 16 | Quiz 8 Concept Check #8 (due 4/1) | |
| Apr. 2 | From Gene to Protein | Ch. 17 | Family Pedigrees (due 4/9) | Fruit Fly Analysis (Ex. 15), Protein Simulation (Ex. 16) |
| Apr. 4 | From Gene to Protein (cont.) | Ch. 17 | Quiz 9 Concept Check #9 (due 4/8) | |
| Apr. 9 | Regulation of Gene Expression | Ch. 18 | | PCR Day 1 (Ex. 19), Double Helix Video |
| Apr. 11 | NO CLASS- INDEPENDENT STUDY DAY | | | |
| Apr. 16 | Exam 3 | | | NO LAB |
| Apr. 18 | Viruses | Ch. 19 | | |
| Apr. 23 | DNA Technology and Genomics | Ch. 20 | Independent Assignment Instructions (CRISPR) | Protein Fingerprinting (Ex. 18) |
| Apr. 25 | Descent with Modification | Ch. 22 | Concept Check #10 (due 4/29) | |
| Apr. 30 | Evolution of Populations | Ch. 23 | Quiz 10 | PCR Day 2 (Ex. 19) Fermentation Results |
| May 2 | The Origin of Species | Ch. 24 | STUDY FOR YOUR COMPREHENSIVE FINAL!!!!!! | |
| May 6-9 | FINALS WEEK | | | |
| Section 003 | FINAL EXAM- May 7th, 8:00AM – 10:00AM | | | |

The last day to drop a course is April 25th.